

## Carta al Director

### Cancer-related knowledge and health status among cancer survivors in Portugal

#### *Conocimiento sobre el cáncer y estado de salud en sobrevivientes de cáncer en Portugal*

To the Editor:

In the last few years, a striking increase in the number of cancer survivors (CS) has been observed, mainly due to the increment in the number of new cases of cancer being diagnosed and the use of more effective treatments. This fact brings new challenges for health services, since CS often experience late and long-term adverse effects of cancer and its treatments,<sup>1</sup> including second primary cancers, cardiovascular complications, depression, pain or fatigue, which may contribute for a poorer perceived health status and a greater use of health care.<sup>2</sup> In addition, a life event such as cancer can be a teachable moment, providing many opportunities to improve health knowledge and behaviours. However, the information needs of CS are mainly treatment-related, with a marginal interest in surveillance and health information,<sup>3</sup> which can hamper the adoption of healthier behaviours, although CS are, in general, more likely to seek cancer information than individuals without this disease (NC).<sup>4</sup>

In this context, we compared CS and NC regarding cancer-related knowledge, health status, health care use and lifestyles. We selected CS and sex-, age- and education-matched (1:4) NC, among participants of a national population-based cross-sectional study.<sup>5</sup> A total of 39 CS, corresponding to a prevalence of 1.4%, and 156 NC were included in this study. Data was collected through face-to-face interviews, using a structured questionnaire, and the effect of a previous diagnosis of cancer was quantified through prevalence ratios (PR), and respective 95% confidence intervals (95% CI).

Figure 1 depicts the perception of potential consequences of cancer, health status and health care use among CS and NC. Except for “impaired working capacity”, CS tended to identify more often all health problems as potential consequences of cancer, with significant differences for “cancer recurrence” (PR = 1.16; 95%CI: 1.04-1.28). They also reported a poorer health status (PR = 2.75; 95%CI: 1.82-4.17) and greater prevalence of cardiovascular diseases (PR = 5.33; 95%CI: 1.96-14.52), hypertension (PR = 1.95; 95%CI: 1.28-2.97), depression (PR = 3.67; 95%CI: 1.75-7.69) and anxiety (PR = 5.14; 95%CI: 2.81-9.42). Consumption of medication (PR = 1.14, 95%CI: 1.01-1.28), annual screening for breast (PR = 2.93; 95%CI: 1.92-4.46), cervix (PR = 2.02; 95%CI: 1.22-3.34) and prostate cancers (PR = 3.12; 95%CI: 1.36-7.16) were more frequent among CS.

Regarding the most important behaviour for cancer prevention, CS tended to refer more frequently “regular check-ups”, “healthy diet” and “not drinking”, and less often “not smoking” and “blood analysis”, albeit these associations were not statistically significant. Additionally, no statistically significant differences were observed between CS and NC regarding smoking, alcohol intake, consumption of fruits and/or vegetables, and physical activity.

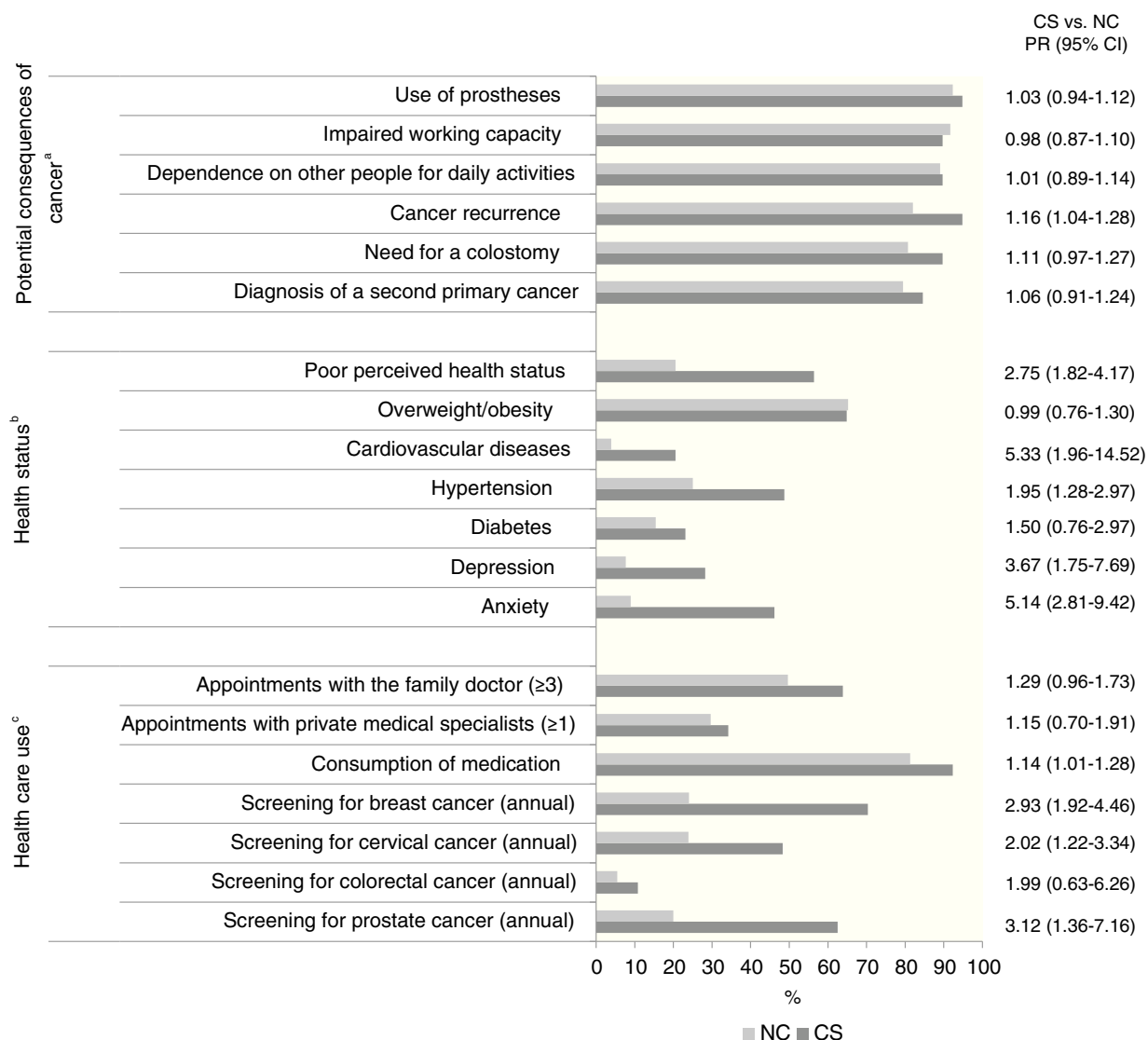
In conclusion, this exploratory investigation has shown that, among CS, there is margin for improvement of knowledge about oncological diseases, and health promotion interventions targeting this specific population are needed. It also confirmed a worse health status, and a higher use of health care resources among CS, particularly concerning the consumption of medication and cancer screening. Hence, the present work provides a benchmark to design and evaluate the effectiveness of knowledge-raising activities targeting CS, to understand the burden of cancer survivorship, and to allocate appropriate resources for national cancer survivorship care plans.

#### Authorship contributions

A. Rute Costa collaborated in the analysis and interpretation of the data and has written the first draft of the letter. P. Moura-Ferreira participated in the design of the survey, reviewed and revised the letter critically for important intellectual content. N. Lunet participated in the design of the survey, defined the specific objectives and strategy of data analysis for this report, collaborated in the analysis and interpretation of the data, and reviewed the letter critically for important intellectual content. All authors approved the final version of the manuscript.

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CI, confidence interval; CS, cancer survivors; PR, prevalence ratio; NC, non-cancer participants.

<sup>a</sup> Participants were questioned whether each health problem could occur as a result of a cancer (for data analysis the options "do not know" and "did not answer" were recoded as "no").

<sup>b</sup> Perceived health status was aggregated in "very poor or poor" and "fair, good or very good". Overweight/obesity was defined if body mass index (self-reported weight/height<sup>2</sup>) was  $\geq 25.0$  Kg/m<sup>2</sup>. Diagnosis by a doctor of major cardiovascular diseases (namely stroke, myocardial infarction, or heart failure), hypertension, diabetes, depression and anxiety was also assessed.

<sup>c</sup> Appointments with the family doctor in the primary health care unit in the last 12 months were dichotomized using the median number as cut-off ( $\geq 3$ ); appointments with medical specialists in the private sector were categorized as none or  $\geq 1$ . The use of any prescribed medication was considered if the participants reported consumption within the previous 12 months. The annual use of cancer screening was assessed for breast (mammography testing, among women aged  $\geq 30$  years), cervix (cervical cytology testing, among all women), colon and rectum (faecal occult blood test and/or colonoscopy, among women and men aged  $\geq 40$  years), and prostate cancers (prostate-specific antigen and/or digital rectal examinations, among men aged  $\geq 40$  years).

**Figure 1.** Perception of potential consequences of cancer, health status and health care use, among cancer survivors and non-cancer participants.

## Conflicts of interest

None.

## References

1. Stein KD, Syrjala KL, Andrykowski MA. Physical and psychological long-term and late effects of cancer. *Cancer*. 2008;112 (11 Suppl):2577–92.
2. Pacheco-Figueiredo L, Lunet N. Health status, use of healthcare, and socioeconomic implications of cancer survivorship in Portugal: results from the Fourth National Health Survey. *J Cancer Surviv*. 2014;8:611–7.
3. Rutten IJ, Arora NK, Bakos AD, et al. Information needs and sources of information among cancer patients: a systematic review of research (1980–2003). *Patient Educ Couns*. 2005;57:250–61.
4. Roach AR, Lykins EL, Gochett CG, et al. Differences in cancer information-seeking behavior, preferences, and awareness between cancer survivors and healthy controls: a national, population-based survey. *J Cancer Educ*. 2009;24: 73–9.
5. Costa AR, Silva S, Moura-Ferreira P, et al. Cancer screening in Portugal: sex differences in prevalence, awareness of organized programmes and perception of benefits and adverse effects. *Health Expect*. 2017;20:211–20.

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